

Aero Design Ltd.

Work Order Control Sheet

Work Order#: 2015-85 Date Opened: 06-Aug-15 Title: Assembly

Aircraft OEM: Bell Aircraft Model: 212/412/205A-1/205B Product Type: Rappel System Product Model: N/A Quantity: 2

Work Order Contents

Work Order/Build Sheets (Procedures Provided)
Additional Work Sheets (Standard Practice)
Drawings (See List Below)
Parts Distribution Sheet
Sub Component Tags
Completed Certification
Time Sheet (R&D)
Notes

Initial or N/A

JR
N/A
JR
JR
JR
JR
N/A
N/A

Build Sheet Contents

Tasks Initialled
Dual Inspections Initialled

Initial or N/A

JR

Drawing List

Drawing #	Rev #	Description	Initial or N/A
75801	2	Installation	JR
75820	2	Mount Assy	JR

Traveller

Initial or N/A

Component Completion

Quantity Complete on This Work Order
Quantity Incomplete on This Work Order
Further Processing Required Before Release
Release to Stock as Components

As Instructed

2
N/A
N/A
N/A

Certification

Form One Completed
Serviceable (Green) Tag Completed
In Process (Yellow) Tag Completed
Unserviceable (Red) Tag Completed
Parts Placed in Stores for Distribution

Initial or N/A

JR
N/A
N/A
N/A
N/A

Additional Documentation

Documentation of a minor change
Non-Conformance Report Required
Service Difficulty Report Required

Initial or N/A

N/A
N/A
N/A

Billing

Local (Aero Design)
Research and Development
Third Party

Initial or N/A

JR
N/A
N/A

Work performed by:

Print: Jeff Clarke

Sign: [Signature]

SCA: AD02

Date: 06-Aug-15

ICC / Dual Inspection performed by:

Print: Jason Rekve

Sign: [Signature]

SCA: AD01

Date: 06-Aug-15

Work Order closed by:

Print: Jason Rekve

Sign: [Signature]


SCA: AD01

Date: 06-Aug-15

Approved Manufacturing Facility 73-04

Form 20.D.05

Rev. Original 23 Sep 2014

1. Approving Civil Aviation Authority/Country Transport Canada		2. AUTHORIZED RELEASE CERTIFICATE FORM ONE			3. Form Tracking No.	
4. Organization Name and Address Aero Design Ltd. – 9888A Malaspina Road, Powell River, BC, V8A 0G3					5. Work Order/Contract/Invoice WO 2015-85	
6. Item	7. Description	8. Part Number	9. Qty.	10. Serial/Batch No.	11. Status/Work	
	Rappel Bar Ass'y	75820-01	1	N/A	New	
12. Remarks Left Hand						
13a. Certifies that the items identified above were manufactured in conformity to:				14a. <input type="checkbox"/> CAR 571.10 Maintenance Release <input type="checkbox"/> Other regulation specified in block 12		
<input checked="" type="checkbox"/> Approved design data and are in condition for safe operation. <input type="checkbox"/> Non approved design data specified in block 12.				Certifies that unless otherwise specified in block 12, the work identified in block 11 and described in block 12, has been performed in compliance with the Canadian Aviation Regulations.		
13b. Signature  AD02		13c. Approved Organization Number AMF 73-04		14b. Signature		14c. Approved Organization Number
13d. Name Jeff Clarke - AD02		13e. Date (dd/mmm/yyyy) 06 Aug 2015		14d. Name		14e. Date (dd/mmm/yyyy)
<p style="text-align: center;">Installer Responsibilities</p> <p>This certificate does not constitute authority to install.</p> <p>Installers working in accordance with the national regulations of a country other than that specified in block 1 must ensure that their regulations recognize certifications from the country specified.</p> <p>Statements in blocks 13a or 14a do not constitute installation certification. In all cases, the technical record for the aircraft must contain an installation certification issued in accordance with the applicable national regulations before the aircraft may be flown.</p>						

Sikorsky

1. Approving Civil Aviation Authority/Country Transport Canada		2. AUTHORIZED RELEASE CERTIFICATE FORM ONE			3. Form Tracking No.	
4. Organization Name and Address Aero Design Ltd. – 9888A Malaspina Road, Powell River, BC, V8A 0G3					5. Work Order/Contract/Invoice WO 2015-85	
6. Item	7. Description Rappel Bar Ass'y	8. Part Number 75820-02	9. Qty. 1	10. Serial/Batch No. N/A	11. Status/Work New	
12. Remarks Right Hand						
13a. Certifies that the items identified above were manufactured in conformity to:			14a. <input type="checkbox"/> CAR 571.10 Maintenance Release <input type="checkbox"/> Other regulation specified in block 12 Certifies that unless otherwise specified in block 12, the work identified in block 11 and described in block 12, has been performed in compliance with the Canadian Aviation Regulations.			
<input checked="" type="checkbox"/> Approved design data and are in condition for safe operation. <input type="checkbox"/> Non approved design data specified in block 12.						
13b. Signature <i>Jeff Clarke AD02</i>		13c. Approved Organization Number AMF 73-04		14b. Signature		14c. Approved Organization Number
13d. Name Jeff Clarke - AD02		13e. Date (dd/mm/yyyy) 17 Sep 2014		14d. Name		14e. Date (dd/mm/yyyy)
<p style="text-align: center;">Installer Responsibilities</p> <p>This certificate does not constitute authority to install.</p> <p>Installers working in accordance with the national regulations of a country other than that specified in block 1 must ensure that their regulations recognize certifications from the country specified.</p> <p>Statements in blocks 13a or 14a do not constitute installation certification. In all cases, the technical record for the aircraft must contain an installation certification issued in accordance with the applicable national regulations before the aircraft may be flown.</p>						

5140025144



Aero Design Ltd.

9888 A Malaspina Rd., Powell River, BC
V8A 0G3, 604-483-AERO (2376)

Quantity:

1

PN:

75824-01

Aircraft:

Bell

Model: 205/212/412

Description:

Plug, Standard 105

Supplier:

Aero Design

Color:

Black

PO# N/A

WO#:

2014-51





Aero Design Ltd.

9888 A Malaspina Rd., Powell River, BC
V8A 0G3, 604-483-AERO (2376)

Quantity: 1
PN: 75825-01
Aircraft: Bell
Description: Plug, Guide
Supplier: Aero Design
Color: Black
WO#: 2014-51

Model: 205/212/412

PO# N/A





Aero Design Ltd.

9888 A Malaspina Rd., Powell River, BC
V8A 0G3, 604-483-AERO (2376)

Quantity: 1

PN: 75826-01

Aircraft: Bell

Model: 205/212/412

Description: Plug, Standard 131

Supplier: Aero Design

Color: Black

WO#: 2014-51

PO# N/A



Aero Design Ltd.

9888 A Malaspina Rd., Powell River, BC
V8A 0G3, 604-483-AERO (2376)

Quantity: 1
PN: 75830-01
Aircraft: Bell Model: 205/212/412
Description: Tube, 4130 Steel, 1.25" dia by 27.5" Long
Supplier: Molectro Plating Inc.
Color: N/A
WO#: N/A PO# 14064





Aero Design Ltd.

9888 A Malaspina Rd., Powell River, BC
V8A 0G3, 604-483-AERO (2376)

Quantity: 1

PN: 75834-01

Aircraft: Bell

Model: 205/212/412

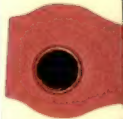
Description: Curved Washer

Supplier: Aero Design

Color: Black

WO#: 2014-51

PO# N/A





Aero Design Ltd.

9888 A Malaspina Rd., Powell River, BC
V8A 0G3, 604-483-AERO (2376)

Quantity: 1

PN: 75824-01

Aircraft: Bell

Model: 205/212/412

Description: Plug, Standard 105

Supplier: Aero Design

Color: Black

WO#: 2014-51

PO# N/A





Aero Design Ltd.

9888 A Malaspina Rd., Powell River, BC
V8A 0G3, 604-483-AERO (2376)

Quantity: 1
PN: 75825-01
Aircraft: Bell
Description: Plug, Guide
Supplier: Aero Design
Color: Black
WO#: 2014-51

Model: 205/212/412

PO# N/A





Aero Design Ltd.

9888 A Malaspina Rd., Powell River, BC
V8A 0G3, 604-483-AERO (2376)

Quantity: 1

PN: 75826-01

Aircraft: Bell

Model: 205/212/412

Description: Plug, Standard 131

Supplier: Aero Design

Color: Black

WO#: 2014-51

PO# N/A





Aero Design Ltd.

9888 A Malaspina Rd., Powell River, BC
V8A 0G3, 604-483-AERO (2376)

Quantity: 1

PN: 75830-01

Aircraft: Bell

Model: 205/212/412

Description: Tube, 4130 Steel, 1.25" dia by 27.5" Long

Supplier: Molectro Plating Inc.

Color: N/A

WO#: N/A

PO# 14064





Aero Design Ltd.

9888 A Malaspina Rd., Powell River, BC
V8A 0G3, 604-483-AERO (2376)

Quantity: 1

PN: 75834-01

Aircraft: Bell

Model: 205/212/412

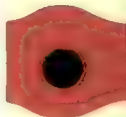
Description: Curved Washer

Supplier: Aero Design

Color: Black

WO#: 2014-51

PO# N/A



Job #: 808
Project: Rappel Bar (2 sets)
Type: Bell Medium

Approval: SH09-2
Drawing List: DCL758-2, Rev. 2

<u>Fabrication and Assembly Drawing(s)</u>	<u>Description</u>
75801, Rev. 2	Rappel Mount Prov. Installation
75820, Rev. 2	Rappel Bar Assembly
75837, Rev. 0	Placards

Complete material tracking information on attached pages.

Tag incomplete parts with Work Order # when stored between processes.

Tag complete parts / assemblies with Release Tag prior to storage.

Work Order pre-completion Inspection:

Project is on Approval Limitation Record:	<u>Y</u>
Document Control List revision level matches (or exceeds) STC:	<u>Y</u>
Drawings revision levels match Document Control List:	<u>Y</u>
Purchase order or Work order source is recorded for each part/ass'y:	<u>Y</u>
Tests and inspections specifically called out on drawings are complete:	<u>Y</u>
Release tags associated with all fabricated parts are attached:	<u>Y</u>
All mounting hardware and supplies are included:	<u>Y</u>

List all non-conformities raised: _____


Inspector Signature: _____

6 Aug 15
Date: _____

Drawing: 75820 Revision 1
 Assembly: Rappel Bar Assembly
 Batch Quantity: 2 sets (1 left / 1 right)

Qty	Part #	Description	Material	P.O./W.O.	Checked
1	75820-01	Rappel Bar Assembly (LH)			
1	75820-02	Rappel Bar Assembly (RH)			
. 1	75830-01	Tube		WO 2014-51	
. 1	75831-01	Guide		WO 2012-06	
. 1	75832-01	Retainer		WO 2012-06	
. 1	75833-01	Stanchion Adapter		WO 2015-83	
. 1	75834-01	Curved Washer		WO 2014-51	
. 1	75835-01	Gate Plunger		WO 2015-83	
. 1	75835-02	Gate Knob		WO 2012-06	
. 1	75824-01	Plug Str. 105		WO 2014-51	
. 1	75825-01	Plug Guide		WO 2014-51	
. 1	75826-01	Plug Str. 131		WO 2014-51	
. 2	33115	Claw Fitting	Kinedyne	14053	
. 4	AN5-6A	Bolt		14068	
. 4	NAS1149F0563P	Washer		14084	
. 1	24704	Spring		12048	
. 1	69830-1032X3	#10-32 x 3" C'sunk Screw	Stainless Steel, Commercial	13027	
. 1	MS21042L3	Nut		8101	
. 1	60624-01	Barrel Nut		WO 2014-12	
1	75801-01	Rappel Mount Provisions Installation (LH)			
1	75801-02	Rappel Mount Provisions Installation (RH)			
. 1	75820-01	Rappel Bar Assembly		(above)	
. 2	75821-05	Guard Ring Assembly (75821-01 and 75821-03 w/ hardware)		WO 2014-51	
. 1	75822-05	Bearing Ring Assembly		WO 2015-83	
. 1	AN4-23A	Bolt		8027	
. 2	NAS1149F0463P	Washer		15022	
. 1	MS21044N4	Nut		14072	

WEIGHT AND BALANCE						
ITEM	DESCRIPTION	WEIGHT (LB)	LONGITUDINAL		LATERAL	
			ARM (IN)	MOMENT (LB-IN)	ARM (IN)	MOMENT (LB-IN)
75801						
-01	RAPPEL MOUNT PROVISION - LHS	7.83	120.4	918.6	-39.5	-301.4
-02	RAPPEL MOUNT PROVISION -RHS	7.83	120.4	918.6	39.5	301.4

WEIGHT AND BALANCE						
ITEM	DESCRIPTION	WEIGHT (LB)	LONGITUDINAL		LATERAL	
			ARM (IN)	MOMENT (LB-IN)	ARM (IN)	MOMENT (LB-IN)
75801						
-01	RAPPEL MOUNT PROVISION - LHS	7.83	120.4	918.6	-39.5	-301.4
-02	RAPPEL MOUNT PROVISION -RHS	7.83	120.4	918.6	39.5	301.4

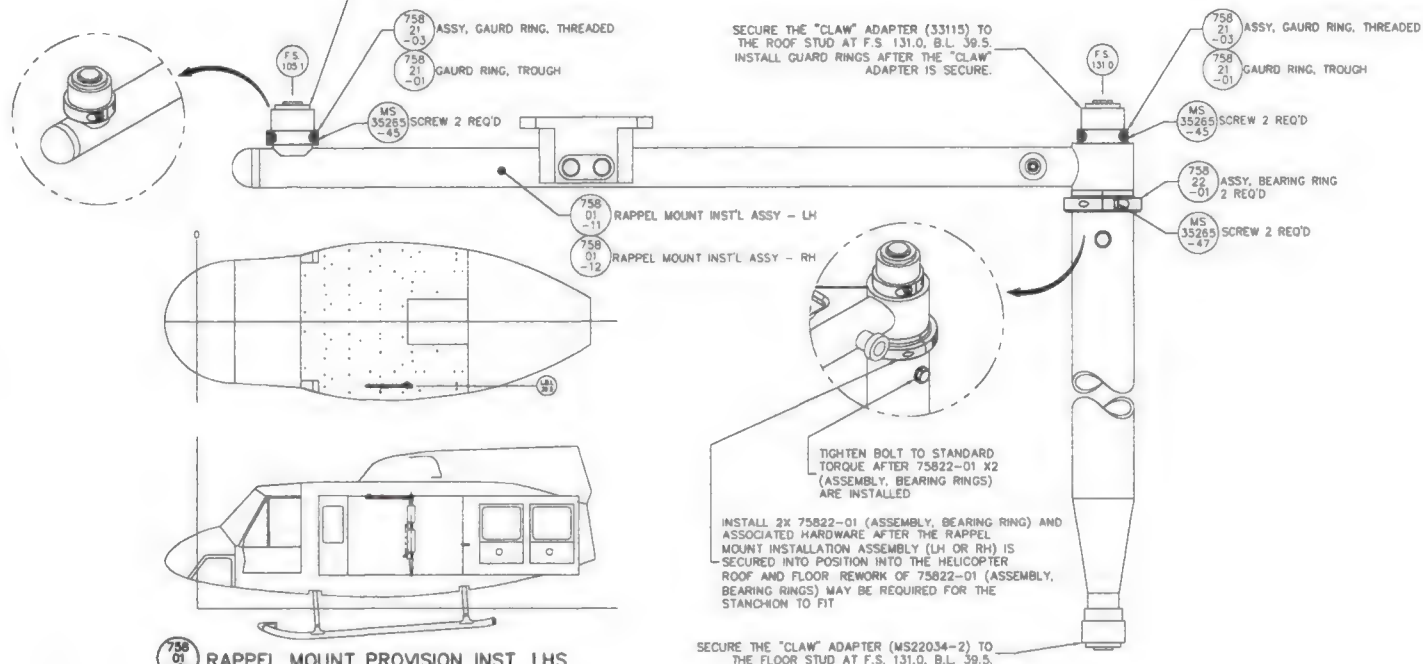
GENERAL INSTALLATION NOTES:

1. INSTALL 75637-01 (PLACARD) AND 75637-02 (PLACARD) IN CLEAR VIEW OF THE PILOT
2. THE HOOK KNIFE MUST BE CARRIED BY THE RAPPEL OPERATIONS LOAD MASTER FOR IMMEDIATE ACCESS OR FIXED WITHIN THE HELICOPTER CABIN READILY ACCESSIBLE TO THE RAPPEL OPERATIONS LOAD MASTER. THE LOCATION DETAILS OF THE HOOK KNIFE MUST BE DETAILED BY THE OPERATING AGENCY'S OPERATING PROCEDURES

ADJUST POSITION OF CLAW ADAPTER
TO MATCH AIRCRAFT. TIGHTEN TO
160-190 IN*LB
- SECURE THE CLAW ADAPTER (33115) TO
THE ROOF STUD AT F.S. 1051, B.L. 39.5
INSTALL GUARD RINGS AFTER THE CLAW
ADAPTER IS SECURE

SECURE THE "CLAW" ADAPTER (33115) TO THE ROOF STUD AT F.S. 131.0, B.L. 39.5. INSTALL GUARD RINGS AFTER THE "CLAW" ADAPTER IS SECURE.

REV	DESCRIPTION OF CHANGE	INITIALS	DATE
0	INITIAL ISSUE		
1	VARIOUS CHANGES	RR	30/12/08
2	FWD CLAW FITTING ADJUSTABLE		14/04/09
2A	FIX ALTERNATE SCREWS	BUC	23/03/12



758
01
-01 RAPPEL MOUNT PROVISION INST. LHS
SHOWN - NOT TO SCALE
758
01
-02 RAPPEL MOUNT PROVISION INST. RHS
OPPOSITE

Diagram illustrating the removal of the adapter and installation of the tube assembly for the RappeL Mount Assembly.

Parts and Assembly Labels:

- RAPPEL MOUNT INST'L ASSY - LH (758 20 -01)
- RAPPEL MOUNT INST'L ASSY - RH (758 20 -02)
- TUBE ASSY 205-072-706-001
- REMOVE: ADAPTER 205-072-421-001 AND ALL ADAPTER FASTENERS
- INSTALL BOLT INTO ASSEMBLY LAST
HAND TIGHTEN NUT AND BOLT
- AN 6 -23A BOLT
- AN 980 -415 WASHER 2 REQ'D
- MS 21043 NUT, LOCKING -4

750
01
-11 RAPPEL MOUNT INSTALLATION ASSEMBLY LH
SHOWN - NOT TO SCALE
750
01
-12 RAPPEL MOUNT INSTALLATION ASSEMBLY RH
OPPOSITE

FASTENER DIAMETER/THREAD SIZE	RECOMMENDED STANDARD TORQUE RANGE
10 - 32	20 TO 25 IN.-LB
1/4 - 28	50 TO 70 IN.-LB

NOTE: THE ABOVE VALUES APPLY TO ANY FASTENER COMBINATION UNLESS OTHERWISE SPECIFIED. TARE TORQUE MUST BE ADDED TO ALL TORQUE VALUES.

1	1	205-070-708-001	TUBE ASSY (BELL HELICOPTERS)	
1	1	M521043-4	LOCKNUT	2109444
2	2	AN660-416	WASHER	15072 15072
1	1	AN4-23A	BOLT	5007
1	1	75802-02	RAPPEL MOUNT ASSEMBLY - RH	
		75802-01	RAPPEL MOUNT ASSEMBLY - LH	
1	1	75801-12	RAPPEL MOUNT INSTALLATION ASSEMBLY - RH	
		75801-11	RAPPEL MOUNT INSTALLATION ASSEMBLY - LH	
2	2	75802-01	ASSEMBLY, BEARING RING	2015-83
1	1	RAPTOR	HOOK KNIFE VENDOR VANGUARD TECHNICS, INC (SAFETY KNIFE)	
1	1	75837-02	PLACARD	
2	2	75837-01	PLACARD	
1	1	75801-03	ASSEMBLY, GAIRD RING, THREADED	2019-51
2	2	75821-01	GAIRD RING, THROUGH	
4	4	M53265-45	SCREW ACCEPTABLE ALTERNATIVE SOCKET HEAD CAP SCREW #8-32 X 0.5 LONG	
4	4	M53265-47	SCREW ACCEPTABLE ALTERNATIVE SOCKET HEAD CAP SCREW #8-32 X 0.75 LONG	
		75801-02	RAPPEL MOUNT PROVISION INST RHS	
		75801-01	RAPPEL MOUNT PROVISION INST LHS	

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APPROVALS	DATE
DRAWN R. RATHWELL	29/12/08
CHECKED E. BURGOIN	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON:

DECIMALS	ANGLES
XXX ±0.010	±1/2°
XX ±0.03	
X ±0.1	

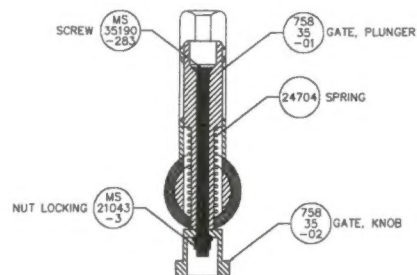
LIST OF MATERIALS

AERO DESIGN LTD.
CONSULTING ENGINEERS, TRANSPORT CANADA APPROVALS, DAR 200M
2013 - 30TH AVENUE N.E., CALGARY, ALBERTA, CANADA T2C 0R7
tel: (403) 262-0057 fax: (403) 262-0020 www.aerodesign.ca

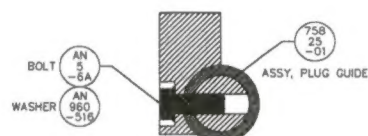
BELL 212, 412, 205A-1, 205B
RAPPEL MOULD PROVISION
INSTALLATION

SCALE NOTED	QWG SIZE	QWG NO	REV	QWG
SHEET 1 OF 1	A1	75801	2	A

REV	DESCRIPTION OF CHANGE	INITIALS	DATE
0	INITIAL ISSUE		
1	VARIOUS CHANGES	RR	30/12/08
2	ADJUSTABLE FORWARD END OF ASSEMBLY INCORPORATED	RR	14/04/09



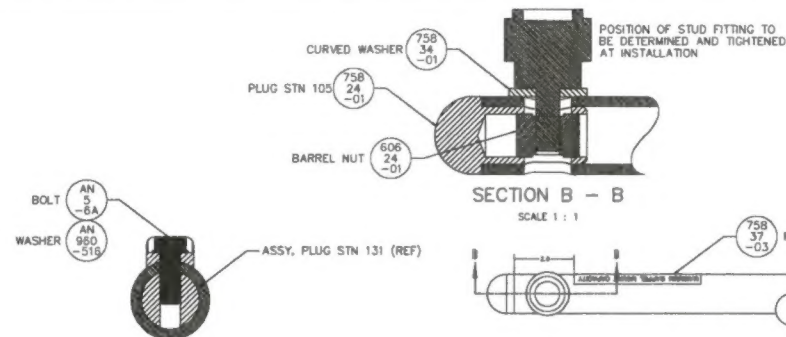
SECTION D - D
SCALE 1 : 1



SECTION C - C
SCALE 1 : 1
TYPICAL 2 PLACES

FASTENER DIAMETER/THREAD SIZE	RECOMMENDED STANDARD TORQUE RANGE
10 - 32	20 TO 25 IN-LB
1/4 - 28	50 TO 70 IN-LB
3/8 - 24	100 TO 140 IN-LB
3/8 - 24	160 TO 180 IN-LB

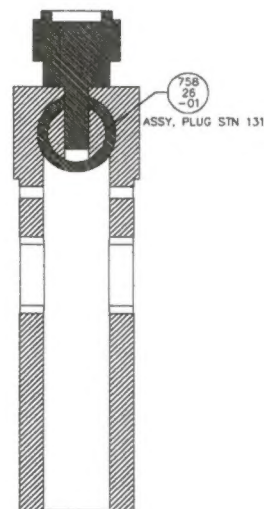
NOTE: THE ABOVE VALUES APPLY TO ANY FASTENER COMBINATION UNLESS OTHERWISE SPECIFIED. TARE TORQUE MUST BE ADDED TO ALL TORQUE VALUES.



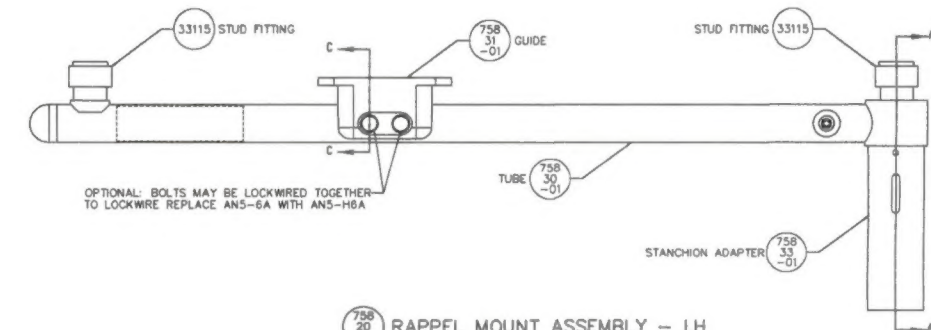
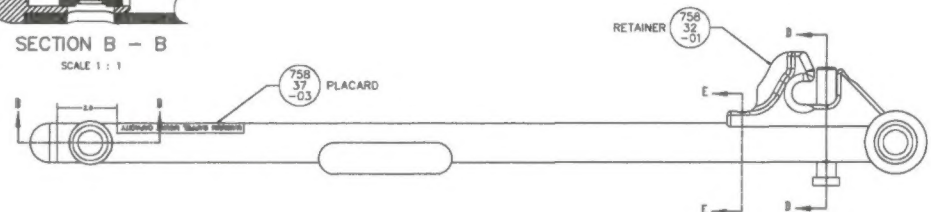
SECTION B - B
SCALE 1 : 1



SECTION E - E
SCALE 1 : 1
TYPICAL 2 PLACES



SECTION A - A
SCALE 1 : 1



758 20-01 RAPPEL MOUNT ASSEMBLY - LH
SHOWN
SCALE 1 : 2

758 20-02 RAPPEL MOUNT ASSEMBLY - RH
OPPOSITE

1	75837-03	PLACARD				
1	MS35190-263	SCREW				
1	24704	Ø 0.5 X 0.041 X 1.5 SPRING	DYNALINE	2048	13047	
4	AN950-516	WASHER		1066	1084	
4	AN5-6A	BOLT			1403	
2	33115	STUD FITTING	KINEDTNE	20472		
1	60624-01	BARREL NUT		204451	2014-51	
1	75820-01	ASSEMBLY, PLUG STN 131		201206	2014-51	
1	75825-01	ASSEMBLY, PLUG GUIDE			2014-51	
1	75824-01	PLUG STN 105			2014-51	
1	75835-02	GATE KNOB			2014-51	
1	75835-01	GATE PLUNGER			2014-51	
1	75834-01	CURVED WASHER			2014-51	
1	75833-01	STANCHION ADAPTER			2014-51	
1	75832-01	RETAINER			2014-51	
1	75831-01	GUIDE			2014-51	
1	75830-01	TUBE			2014-51	
1	75820-21	RAPPEL MOUNT ASSEMBLY - RH			2014-51	
1	75820-01	RAPPEL MOUNT ASSEMBLY - LH			2014-51	
Q2	01	PART NO.	DESCRIPTION	MATERIAL/VENDOR	MATERIAL SPEC	STOCK SIZE
QTY		LIST OF MATERIALS				
APPROVALS		DATE		AERO DESIGN LTD.		
DRAWN: R. RATHWELL		22/04/08		CONSULTING ENGINEERS, TRANSPORT CANADA APPROVALS, DAB 090M		
CHECKED: E. BURGOIN				2013 - 50TH AVENUE N.E., CALGARY, ALBERTA, CANADA, T2B 0B7		
				tel: (403) 260-0007 fax: (403) 260-0330 www.aerodesign.ca		
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ON:		BELL 212, 412, 205A-1, 205B RAPPEL MOUNT PROVISION RAPPEL MOUNT ASSEMBLY				
DECIMALS ANGLES						
X.XXX ±0.010 ±1/2°						
X.XX ±0.03						
X.X ±0.1						
SCALE 1 : 2		DWG. SIZE		REV.		
SHEET 1 OF 1		A1		75820		
				2		



WO# 2015-15

See build sheet

**Aero Design Ltd.**

9888 A Malaspina Rd., Powell River, BC
V8A 0G3, 604-483-AERO (2376)

Quantity: 1
PN: 33115 12
Aircraft: N/A
Description: Claw Fitting
Supplier: Traction
Color: N/A
WO#: N/A
Model: N/A
PO# 14053

**Aero Design Ltd.**

9888 A Malaspina Rd., Powell River, BC
V8A 0G3, 604-483-AERO (2376)

Quantity: 1
PN: 33115 12
Aircraft: N/A
Description: Claw Fitting
Supplier: Traction
Color: N/A
WO#: N/A
Model: N/A
PO# 14053

**Aero Design Ltd.**

9888 A Malaspina Rd., Powell River, BC
V8A 0G3, 604-483-AERO (2376)

Quantity: 1
PN: 33115 12
Aircraft: N/A
Description: Claw Fitting
Supplier: Traction
Color: N/A
WO#: N/A
Model: N/A
PO# 14053



Aero Design Ltd.

9888 A Malaspina Rd., Powell River, BC
V8A 0G3, 604-483-AERO (2376)

Quantity:

1

PN:

33115 12

Aircraft:

N/A

Model: N/A

Description:

Claw Fitting

Supplier:

Traction

Color:

N/A

WO#:

N/A

PO# 14053